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29 July 1992



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Office of the Secretary  
Federal Communications Commission  
Washington, D.C. 20554

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Attention: Donna R. Searcy, Secretary

FCC MAIL BRANCH

Dear Ms. Searcy:

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Subject: ~~406.025 MHz~~ the Authorization for the use of the frequency 406.025 MHz for  
Emergency Locator Transmitters (ELTs)

MPR Teltech is a research and development company involved in the design and manufacturing of 406 MHz beacons. Our first product was the SATFIND-406 EPIRB (ref. FCC Identifier IVR406EPIRBM34) which is manufactured and distributed worldwide by Alden Electronics, Inc. of Westborough, MA. MPR Teltech are currently commercializing a 406 MHz Personal Locator Beacon, the SATFIND-406 POCKET PLB, in Canada. In addition we are collaborating with major Canadian companies in the development of 406 MHz ELTs. MPR Teltech approaches these products in an holistic fashion and there are many common issues.

The following comments are directed specifically to the NPR released on June 5, 1992 - (PR Docket No. 92-125):

1. MPR Teltech is highly supportive of the use of the frequency 406.025 MHz for ELTs. The COSPAS-SARSAT system on which all 406 MHz beacons operate is robust and fully operational. The experience with 406 MHz EPIRBs has been very positive. The superior accuracy of 406 MHz locations over 121.5 MHz locations through the COSPAS-SARSAT system have resulted in search area reductions in the order of 100 times. The global coverage and the coded beacon identifiers are additional features that make 406 MHz distress beacons technically far superior to the earlier 121.5 MHz beacons.
2. Reference III. DISCUSSION 5.: I interpret that the intent is to permit the carriage of 406 MHz ELTs in addition to 121.5 MHz ELTs. Realizing that this is an FAA issue, it is still valid to comment that this is redundant and would pose an additional burden on the owners of aircraft. Those purchasing new aircraft and wishing to avail themselves of the superior 406 MHz ELT would still be required to buy a 121.5 MHz ELT. All current aircraft owners who wished to purchase a 406 MHz ELT would face a perpetual service cost for their existing 121.5 MHz ELT. Since the 406 MHz ELTs will have a 121.5 MHz homing signal, there is little practical value in maintaining a technically obsolete 121.5 MHz ELT if a 406 MHz ELT is carried. Therefore, it seems appropriate to have the requirements reflect that the 406 MHz ELT can be voluntarily carried **in lieu of** the mandatory 121.5 MHz ELT.

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3. There are several flaws in the 121.5 MHz ELT program that should not be allowed to be proliferated with 406 MHz ELTs. Indeed, it would be useful to address the 121.5 MHz program to see if anything can be done there.

The most significant issues are as follows:

- a. A mandatory service by FAA approved service depots is recommended and the beacons must be so designed that they will operate properly within the required service period. Annual performance certifications may be excessive. A service interval (possibly defined by the manufacturer) should be required and should not exceed the original product warranty period. It is my understanding that 121.5 MHz ELTs do not currently have to be serviced except for battery replacement and are not required to pass a performance check ever. This leads to the sad fact that many ELTs (over 40% according to one source) would not adequately transmit if required. Couple this with the poor survivability of ELTs after a crash and it is unlikely that more than 10% of downed aircraft ever transmit a distress.
  - b. Issues relating to low temperature operation must be adequately resolved **in the time frame that product will be manufactured and sold**. It is generally accepted that for -20°C operation, lithium batteries are required and for the power demands of an ELT, the batteries will probably be of a size that they will be rated as Dangerous Goods. This poses challenges both in the installation of the equipment in the aircraft and in the transportation of the product. I don't believe a workable answer is at hand. The debate between the hazards of lithium batteries versus their obvious value continues with no end in sight.
  - c. False alarms of 121.5 MHz ELTs exceed 98%. This is due mainly to design deficiencies that cause unwanted activations, inadequate maintenance and operator error. The 406 MHz ELT will have a coded identifier which, with an appropriate beacon registry, will allow the false alarm problem to be managed more effectively. However, it is imperative that false alarms be minimized through proper design, good maintenance and education of the user. It has been noted that one of the recommended procedures to avoid false alarms is to disconnect the ELT's battery when the aircraft is not in use. There is a danger that the pilot may not reconnect same and very likely a good percentage of non-activations can be attributed to this practice.
4. It would be desirable to have an ELT that transmits only at 406 MHz since this would stifle the proliferation of 121.5 MHz signals that are already a source of great annoyance. By August 1993, GMDSS requirements will have added about 75,000 more 406 MHz EPIRBs equipped with a 121.5 MHz homer. That will more than triple the number of satellite distress beacons in the world and consequently add another 75,000 beacons generating 121.5 MHz signals. Unfortunately, the aviation community is heavily dependent on 121.5 MHz homing devices and there appears to be no choice but to include a VHF

homing device. It is recommended that a single homing frequency of 121.5 MHz would be adequate. The 243 MHz signal could be allowed but should not be mandatory.

5. Type Acceptance procedures similar to those in place for the 406 MHz EPIRB should be required and a COSPAS-SARSAT Type Approval certificate is already a prerequisite. It would be very beneficial if there were adequate facilities in the United States for the testing of the 406 MHz ELTs to the FAA's requirements per RTCA/DI-204. At present, due to the lack of authorized and experienced testing facilities in the United States, the 406 MHz EPIRB testing must be done abroad and costs exceed \$50K.
6. It is currently believed that the 406 MHz EPIRB registration at NOAA is in the order of 70%. A good goal would be 95%. Current efforts to improve this figure range from penalties for false alarms generated by unregistered beacons to education of the user in the merits of registered beacons. Progress is being made but **mandatory registration is a must**. The improved effectiveness in the timely deployment of scarce SAR resources far outways any practical concerns over Privacy Act infringement. Mandatory beacon registration, supplemented with an education process will increase registration dramatically. Penalties and fines of appropriate magnitude can be authorized as well.

It is hoped that these comments will prove beneficial to the FCC in its efforts to bring this very useful legislation into effect.

Yours truly,

  
Al Coppin

Marketing Manager  
Emergency Communications Products